Trading Platform Conformance Test

V1.09

Review History:

Version	Date	Changes
1.0	15 May 2017	First Draft
1.01	25 May 2017	Remove order update case since it will not be supported upon launch.
1.02	15 Aug 2017	Added test cases for: 1. Support of Business Unit 2. Failover support by supplying multiple name servers using RegisterNameserver()
1.03	15 Aug 2017	Added test case to send Client Info upon login.
1.04	21 Aug 2017	Remove unsupported Order Types for 3.3.3
1.05	1 Dec 2017	Added test cases for: 1. Calendar Date 2. Instrument status update for MD API 3. Bulletin update for MD API
1.06	4 Dec 2017	Limit supported order types to: 1. Market 2. GFD 3. FOK 4. FAK
1.07	26 March 2018	Added test case for omnibus account.
1.08	29 June 2018	Added more test cases.
1.09	26 Dec 2018	Modified some test cases.
1.10	6 Nov 2019	Added test case for heartbeat warning.

Contents

1. Objective

The objective of this guide is to help ISV or Trading Members to get their Trading Platform certified to trade with APEX Trading Engine.

2. Checklist

A. Tester details:

Test Requester Company		Testing Date	
Company Address			
Data Centre Address			
Tester Name		Contact number	
Tester Email			
Connection Type	☐ Leased line	Bandwidth	
	☐ Internet VPN		
	☐ Internet		
	☐ Collocation		

B. Testing Server details:

Server Brand & Model	Hardware Specs	Hosted Applications	OS & Version
	CPU: RAM: Storage:		
	CPU: RAM: Storage:		

C. Trading Platform details:

Trading Platform Name			
Version		Release Date	
Vendor Name			
Vendor Address			
OS & Version			
APEX API Package Name	*e.g. APEX API v1.1 Linux.zip*		
Login Assigned by APEX	Participant ID	User ID	Client ID
Testing IP & Port assigned by APEX			
Testing Purpose	☐ New Trading Platform onboarding conformance with APEX ☐ Existing Trading Platform re-conformance due to following change:		

3. Test Cases

3.1 Login and Password Change (Trading and MD API)

Case No.	Title	Tasks	Outcome (Tester to provide evidence: logs, screen shots etc.)	APEX comments	Results: Pass/Fail/NA
3.1.1	Name Server	There should be 4 Name Servers registered in production.			
3.1.2	Login	Successful login with issued login details.			
3.1.3	User ID Type <mark>(Trading API only)</mark>	Indicate which user ID types are supported: 1. Single Trade: only able to receive order/trades initiated by current login user. 2. Manage Trade: able to receive order/trades initiated by all login users under the current Member ID and its sponsored Member ID(s). In production, only "Single Trade" will be issued unless "Manage Trade" is specially requested and approved.			

3.1.4	Subscription Method and Subscription Type	List down which subscription method and Resume Type are used. For Trading API Method: 1. SubscribePrivateTopic() 2. SubscribeUserTpic() 3. SubscribePublicTopic() For MD API Method: 1. SubscribePublicTopic() 2. SubscribeMarketDataTopic() Subscription Type: 1. APEX_TERT_RESTART 2. APEX_TERT_RESUME 3. APEX_TERT_QUICK			
3.1.5	Login Retry	Upon below error, able to retry login every certain interval (e.g. 1 minute) until success: • ErrorID = 45 • ErrorMsg = "INVALID DATA GROUP			

		DATASYNC STATUS IN INITIALIZATION"			
3.1.6	Heartbeat Warning	Override OnHeartBeatWarning() method to check the network connection status. Make sure that the API rarely invokes this callback.			
3.1.7	Disconnect	Able to disconnect by disconnect or terminate inside OnFrontDisconnected() method			
3.1.8	Password Change (Trading API Only)	1. Successfully changed the password. 2. Successful login after password change.			
3.1.9	Client Info	Correct information must be provided in InterfaceProductInfo and UserProductInfo inside CApexFtdcReqUserLoginField. A string to identify the product, for example: systemname_version			

3.2 Instrument Handling (Trading and MD API)

Case No.	Title	Tasks	Outcome (Tester to provide evidence: logs, screen shots etc.)	APEX comments	Results: Pass/Fail/NA
3.2.1	Query instrument list and status	Successfully query all listed instrument and status after login.			
3.2.2	Subscribe to instrument status update	Successfully receive instrument status changes.			

3.3 Exchange Bulletin (Optional)

Case No.	Title	Tasks	Outcome (Tester to provide evidence: logs, screen shots etc.)	APEX comments	Results: Pass/Fail/NA
3.3.1	Query Exchange Bulletin	Successfully query Exchange Bulletin after login.			
3.3.2	Subscribe to Exchange Bulletin	Successfully receive new Exchange Bulletin.			

3.4 Order and Trade (Trading API only)

Case No.	Title	Tasks	Outcome (Tester to provide evidence: logs, screen shots etc.)	APEX comments	Results: Pass/Fail/NA

3.4.1	GFD Limit Order	1. Send a limit order and then cancel the order 2. Send a limit order, partially filled and then cancel the order. 3. Send an aggressive limit order, which should be partially filled immediately, and then cancel the order. 4. Send a limit order, fully filled. 5. Send an aggressive limit order, which should be fully filled immediately.			
3.4.2	FAK Order	1. Send a limit FAK order and cancelled by Exchange without fill. 2. Send a limit FAK order and partially filled. 3. Send a limit FAK order and fully filled.			
3.4.3	FOK Order	1. Send a limit FOK and cancelled by Exchange without fill. 2. Send a limit FOK and fully filled.			
3.4.4	Market Order	1. Send a Market Order without fill 2. Send a Market Order and partially filled 3. Send a Market Order and fully filled.			

3.4.5	Order Reject	Handle rejected orders properly due to below reasons (e.g. correctly mark the order as rejected and inform user): 1. Price out of boundary 2. Invalid Client ID 3. Unsupported Order Type			
3.4.6	Purge Order	Member System purges all active orders after market is closed and before the start of the next trading day.			
3.4.7	Client ID	Successfully send orders for at least two ClientID with the same User ID			
3.4.8	Omnibus Account	1. Two "Single Trade" users are able to send order to the same APEX Omnibus account 2. Each Login is able to receive its own order acknowledgement and trades, but not another login.			
3.4.9	Trade Date	Successfully get the correct System Trade Date (TradingDay in CApexFtdcRspUserLoginField) upon login.			
3.4.10	Business Unit	Successfully send orders with "Business Unit" mapped to account number in Trading Platform.			

		When the order is partially or fully matched, the Trading Platform is able to receive the same "Business Unit" in trade message.			
3.4.11	Calendar Date	Successfully get Calendar date for trades.			
3.4.12	Reconciliation	1. Does the platform do any order and trade reconciliation upon start-up or reconnection to make sure both ends are consistent? If so, how it is performed? 2. Will the platform raise any warning or alert should any discrepancy is found.			
3.4.13	Order book consistency upon restart	The same order book should stay upon trading platform restart during trading hours.			
3.4.14	Trade book consistency upon restart	The same trade book should stay upon trading platform restart during trading hours.			
3.4.15	Manage Trade (Optional)	Below test case is only applicable if your trading platform supports "Manage Trade" ID: 1. Able to process orders/trades from another user ID under the same member ID correctly.			

		2. Upon reconnection, able to process offline orders/trades from another user ID under the same member ID correctly.			
3.4.16	Night Session Orders	Night session orders should be carried over to the morning session and afternoon session of the same trading day.			
3.4.17	Order Capacity	What is the maximum number of orders your platform can support per day? (Minimum requirements is 100000)			
3.4.18	Trade Capacity	What is the maximum number of trades your platform can support per day? (Minimum requirements is 50000)			
3.4.19	Transaction Capacity	What is the maximum number of transactions (orders + trades) your platform can support per second?			
3.4.20	Client Capacity	What is the maximum number of client's accounts your platform can support?			
3.4.21	Synthetic Order Modification	As APEX does not support order modification, can your platform send synthetic modification?			
3.4.22	Synthetic Order	As APEX does not support exotic order like Iceberg Order, can you platform send the synthetic Iceberg Orders?			

3.4.23	Reject Order	1. How does your platform handle rejected orders? 2. Does your platform determine whether to resend the order based on returned error code?			
3.4.34	Start-up behaviour	Does your platform query below upon start-up? 1. Orders 2. Trades 3. Instrument Status			
3.4.35	Reconnection behaviour	Does your platform query below upon reconnection? 1. Orders 2. Trades 3. Instrument Status			
3.4.36	Instrument Status subscription	Does your platform subscribe to Instrument Status? If no, please state the reason.			

APEX Supported Order Types

S.N.	OrderType	PriceType	TimeCondition	VolumeCondition

			1: Any 2: Limit	1: IOC 3: GFD	1: Any 3: All
1	**Market**		**1**	**1**	**1**
2	**GFD (Limit)**		**2**	**3**	**1**
3	**FOK**		**2**	**1**	**3**
4	**FAK**		**2**	**1**	**1**

3.5 Market Data (MD API only)

Case No.	Title	Tasks	Outcome (Tester to provide evidence: logs, screen shots etc.)	APEX comments	Results: Pass/Fail/NA
3.5.1	Snapshot	Successfully get market data snap shot upon login			
3.5.2	Update	Successfully get all market data update.			
3.5.3	Level 2 Data handling	Subscribe to level 2 topic and able to receive top 5 best bid and ask quotes.			

3.6 Risk Control (Trading API only)

Case No.	Title	Tasks	Outcome (Tester to provide evidence: logs, screen shots etc.)	APEX comments	Results: Pass/Fail/NA
3.6.1	Credit/Capital control	How does your platform calculate margin and control the credit limit in real-time?			
3.6.2	Position Control	How does your platform control position limit?			
3.6.3	Other risk control	What are other risk control mechanisms implemented in your platform? If there is any. （Fat finger）			
3.6.4	Password Management	What is your platform password policy? E.g.: 1. Minimum password length 2. Character combination requirement 3. Must change upon first login? 4. Is password encrypted when login? 5. Password retention			

| 3.6.5 | Batch order cancel | Does your system support on-click batch order cancellation? | | | |

3.7 System Requirement and General Information (Trading and MD API)

Case No.	Title	Tasks	Information (provide the necessary information based on your discretionary)	APEX comments	Results: Pass/Fail/NA
3.7.1	System Requirement	Please list down: 1. Minimum hardware and software requirements needed to run your platform			
		2. Supported OS (including mobile terminal like iOS, Android etc.)			
		3. Network design to connect to APEX			
3.7.2	System architecture	Please provide a high level architecture design of your system with main modules and functions.			
3.7.3	System Availability	What is the estimated RTO (recovery time objective) and RPO (recovery point objective) of your system?			

		What measures have been designed / implemented to achieve the availability?			
3.7.4	User Manual	Please provide a copy of your public User Manual if possible. This will help us better assess your system and introduce your product to potential customers if needed.			

4. Signatures

Tester's Signature:	Tester's Manager's Name:
	_____
	Title:
	_____
Date:	Signature:
_____	
	Date:
	_____

Verified by (APEX representative):

_____

Signature:

Date:

_____

Approved by (APEX Manager):

_____

Signature:

Date:

_____

This is to certify that above-mentioned Trading Platform has

☐   **PASSED** the conformance test.

☐   **NOT PASSED** the conformance test due to following reason(s):

_____